

**Work Order ID 69218**

Thursday, May 05, 2011 11:44:41 AM



Page 1

Item ID: D3391-021

Accept



Setup Start



Revision ID:

Item Name: Fwd Tube Assembly

Stop



Start Date: 5/5/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 5/18/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:



Date: 11-05-5

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D3391	Rev H

100 Skidtubes 0.00

Skidtubes	Memo	0.00
Skidtubes	Cut extrusion to 46.52 +0.010 -0.020	

110 Skidtubes 0.00

BENDING MACHINE - SKIDTUBES	Memo	0.00
CNC Bend 1	Bend as per Dwg D3391 Using Bend Prog 3391021	

120 QC5- Inspect part completeness to step on W/O 0.00

Quality Control	Memo	0.00
QC		

11-5-5

11-5-5

11-05-05

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Reference:

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Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130



HAAS CNC VERTICAL MACHINING #1

0.00

B.A 11/05/25

1

Ø

HAAS I

HAAS CNC vertical machine #1

Memo

0.00

1-Machine as per Folio FA590 Rev. AA & Dwg D3391 Rev. H  
Identify as D3391-I  
2-Deburr

140



QC

QC2- Inspect parts off machine FAI/FAIB

0.00

B.A 11/05/25

1

Ø

Quality Control

150



Mill Conv

CONVENTIONAL MILLING MACHINE

0.00

DR 11/06/01

1

Conventional Milling Machine

Memo

0.00

Drill X1 Aft cap as per Dwg D3391 .1875" dia

W/O:		WORK ORDER CHANGES					
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Required Date: 5/18/2011 Req'd Qty: 1.00



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Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

180



Skidtubes

Operation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Skidtubes

Memo

0.00

1-Drill float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)  
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5- open float bag holes 0.328" and counter sink as per dwg D3391

6-Deburr & Scribe Batch number Inside aft end.

7-Transfer drill D3391-021 with D3391-023

190



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

200



HandFinish

Chemical Conversion Coat per QSI005 4.1

0.00

Hand Finishing

210



QC3- Inspect Part Finish

0.00

QC

Quality Control

220



Skidtubes

0.00

Skidtubes

Memo

0.00

1-instal spacers as per dwg D3391  
 A/R Magnabond 6398 batch: M11677  
 exp. date: 2011-8-30  
 cure time 12hrs. as per QSI015  
 2-grind crossbolt flush  
 3-back drill crossbolt if necessary

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_ Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_

Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

230



QC5- Inspect part completeness to step on W/O

0.00

Sulog66

0.00

QC

Quality Control

235



Pressure Wash per QSI005 4.3

0.00

0.00

HandFinish

Hand Finishing

Memo

AND REALODINE AS PER PAR09-043

240



White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

0.00

Powdercoat

Powder Coating

Memo

START TIME: 8:00  
OVEN TEMPERATURE: 320° F  
FINISH TIME: 8:30

W/O:		WORK ORDER CHANGES					
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Start Date: 5/5/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 5/18/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

250



QC3- Inspect Part Finish

0.00

1 6 M u 106107

QC

Quality Control

255



Skidtubes

0.00

1 6 M u 106107

Skidtubes

Memo

0.00

✓ \*\*\*\* install D3591-1 spacer as per DSI9364 and wearplate and gasket as per DWG \*\*\*\*

257



QC5- Inspect part completeness to step on W/O

0.00

S u l o l o g

(Y) \_\_\_\_\_

QC

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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**Work Order ID 69218**

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Setup

Start

**Revision ID:****Item Name:** Fwd Tube Assembly

Stop

**Start Date:** 5/5/2011    **Start Qty:** 1.00**Cust Item ID:****Required Date:** 5/18/2011    **Req'd Qty:** 1.00**Customer:****Reference:****Approvals:****Process Plan:****Date:****Tooling:****Date:**

Run

Start

**QC:****Date:****SPC (Y/N):****Date:**

Stop

**Sequence ID/  
Work Center ID****Operation  
Description****Set Up/  
Run Hours****Tool ID****Tool #****Plan  
Code****Accept  
Qty****Reject  
Qty****Reject  
Number****Insp.  
Stamp**

260



Packaging

Packaging

Identify as per dwg & Stock Location: WLO

0.00

D412-742-043/13 69243

1

0

WLO 69243

280



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

11/06/08

MF  
11-06-08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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## Picklist Print

Thursday, May 05, 2011 11:44:48 AM

Page 1

Work Order ID: 69218



**Parent Item:** D3391-021



**Parent Item Name:** Fwd Tube Assembly

Start Date: 5/5/2011

Required Date: 5/18/2011

**Comments:** IPP A 05.09.13 New issue KJ/JLM  
IPP B 06.02.10 Dwg rev.D een 773 ECO  
IPP C 06.05.02 Added inspections ECO  
IPP D 07.03.13 rev F dwg EC  
IPP E 07.11.07 revG dwg ecn1053P EC verified by: DD  
IPP Rev:f ECN 1056 07-11-12 DD verified by: EC  
IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC  
IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC  
IPP Rev J 09.02.02 added hardware EC verified by: DD

Start Qty: 1,00

Start Qty: 1.00      Required Qty: 1.00

Start Qty: 1,00

Start Qty: 1.00      Required Qty: 1.00

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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# Picklist Print

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Thursday, May 05, 2011 11:44:48 AM

Work Order ID: 69218



Parent Item: D3391-021



Parent Item Name: Fwd Tube Assembly

Start Date: 5/5/2011

Required Date: 5/18/2011

Start Qty: 1.00

Required Qty: 1.00

D3564-13



Manufactured

No

255

Each

30.0000

1

1



SL u106107

Wearshoe

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	FP017	30	
	66136	15	
	66549	1	
	66805	14	

D3566-13



Manufactured

No

255

Each

33.0000

1

1



SL u106107

Gasket

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	FP014	33	
	66550	13	
	68341	20	

AN960C10L

NAS1149C0332 R



Purchased

No

255

Each

0.0000

10

10

X1 117241



X1 117241 SL u106107

washer

AN3C4A



Purchased

No

255

Each

1,984.000

10

10



SL u106109

BOLT

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	ST350	1984	
	117094	984	
	117313	1000	

W/O:		WORK ORDER CHANGES					
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# Picklist Print

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Thursday, May 05, 2011 11:44:49 AM

Work Order ID: 69218



Parent Item: D3391-021



Parent Item Name: Fwd Tube Assembly

Start Date: 5/5/2011

Required Date: 5/18/2011

Start Qty: 1.00

Required Qty: 1.00

D3672-1

Manufactured

No

255

Each

1,379.000

4

4



ALL 1106107

Phenolic Washer

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	FP-A	29	
	52505	29	
	ST074	1350	
	64177	850	✓✓
	66821	500	

AELS-1032-130

Purchased

No

255

Each

0.0000

2

2

ALL 1107717



(x2) ALL 1106107

INSERT

AELS-1032-225

Purchased

No

255

Each

0.0000

10

10

ALL 110768



(x10) ALL 1106107

INSERT

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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DART AEROSPACE LTD	Work Order:	G9218
Description: Float Skidtube (412)	Part Number:	D3391-1"
Inspection Dwg: D3391 Rev: H		Page 1 of 1

# FIRST ARTICLE INSPECTION CHECKLIST

X First Article      Prototype

Measured by:	B A S	Audited by:	CML	Prototype Approval:	N/A
Date:	11/05/25 1/06/01	Date:	11/06/01	Date:	N/A

<b>Rev</b>	<b>Date</b>	<b>Change</b>	<b>Revised by</b>	<b>Approved</b>
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	
C	07.03.21	Dimensions removed per Dwg rev. F	KJ/JLM	
D	07.11.23	Dwg Rev. updated	KJ/EC/DD	
E	09.12.14	Dwg Rev updated	KJ	PF AA

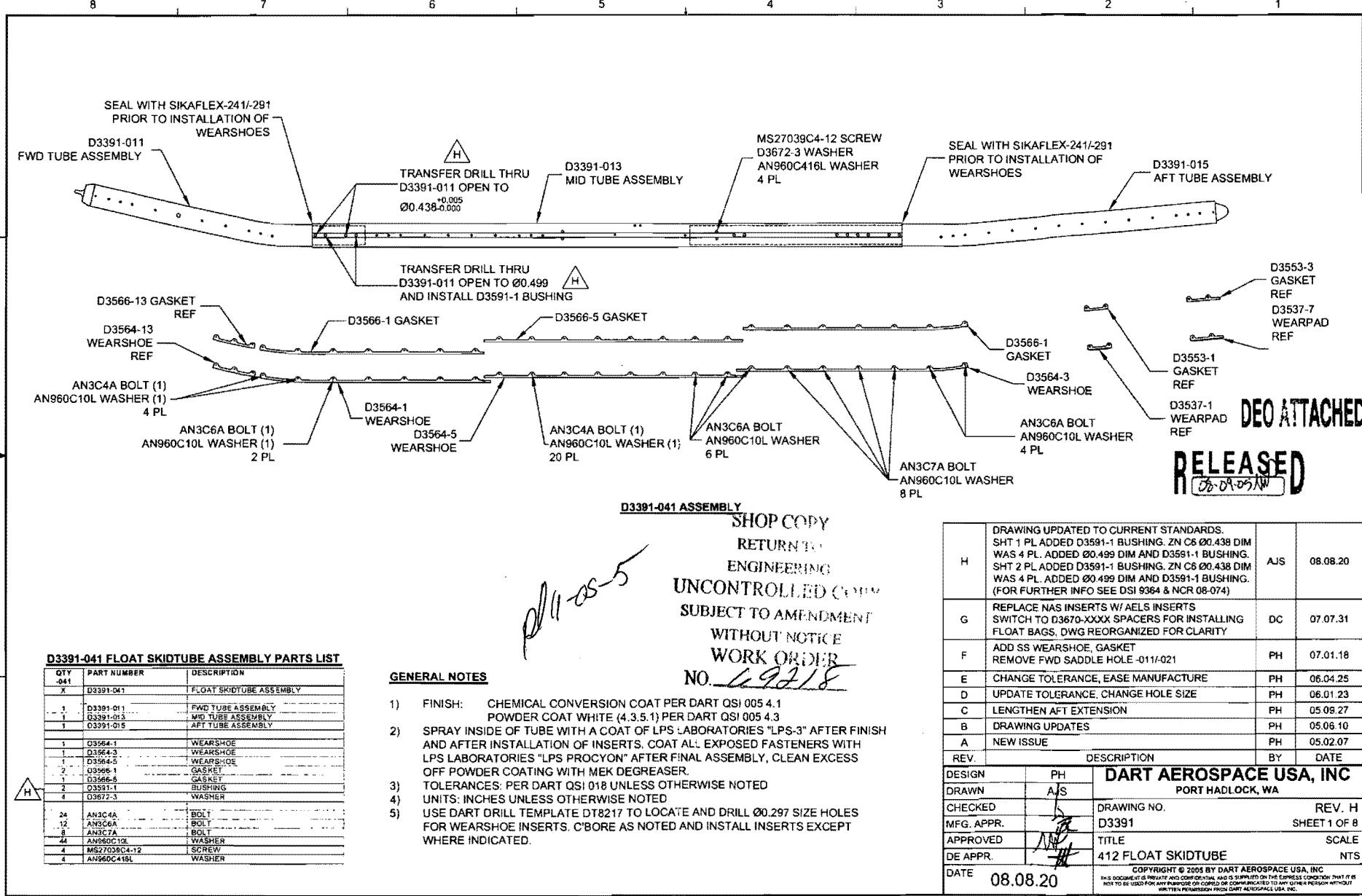
Dart Aerospace Ltd

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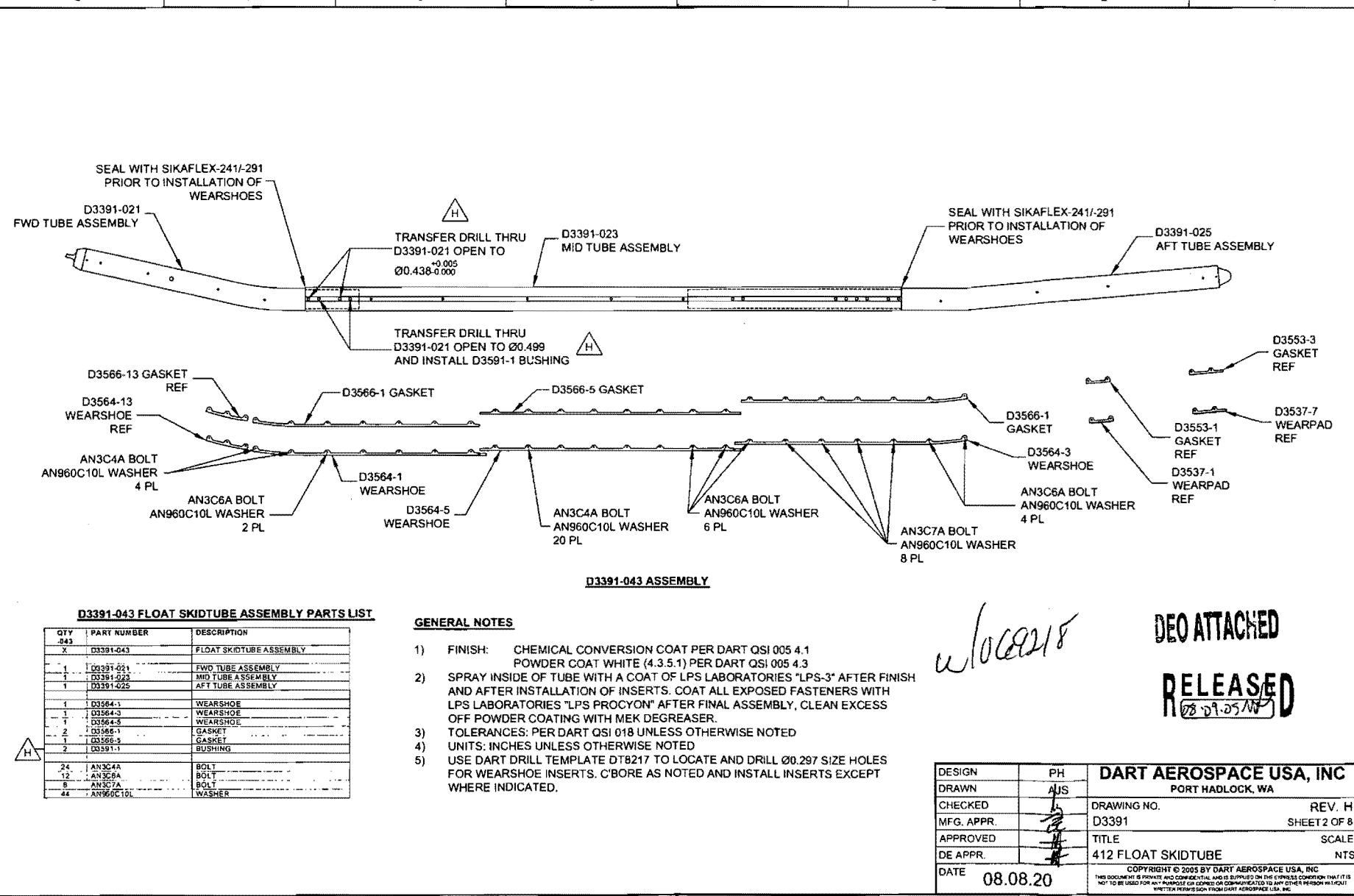
W/O:		WORK ORDER CHANGES					
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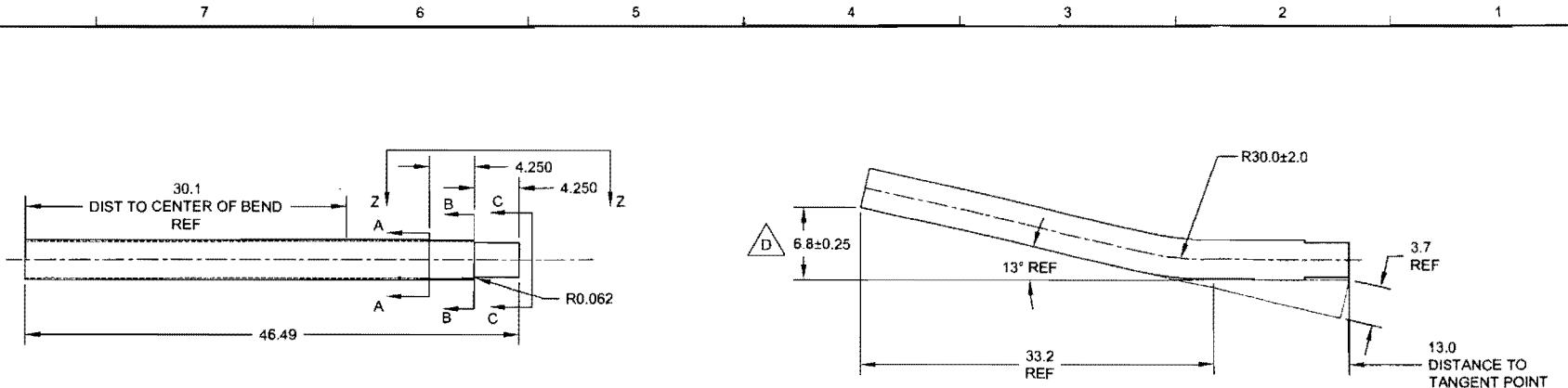
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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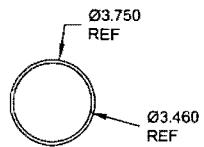
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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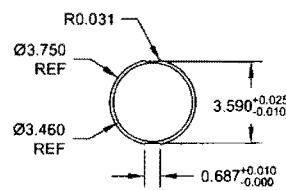


**D3391-1 CUTTING DETAIL**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)

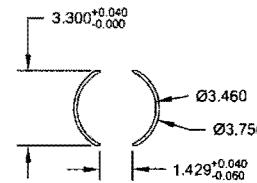
**D3391-011-021 BENDING DETAIL**  
(MAKE FROM D3391-1)



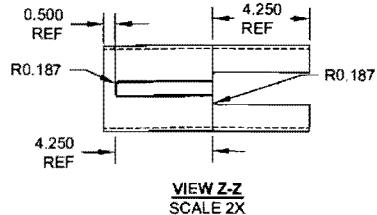
**SECTION A-A**  
SCALE 2X



**SECTION B-B**  
SCALE 2X



**SECTION C-C**  
SCALE 2X



**VIEW Z-Z**  
SCALE 2X

DESIGN	PH	<b>DART AEROSPACE USA, INC</b>	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 3 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

W 0 09218  
**DEO ATTACHED**  
**RELEASED**  
08.08.20

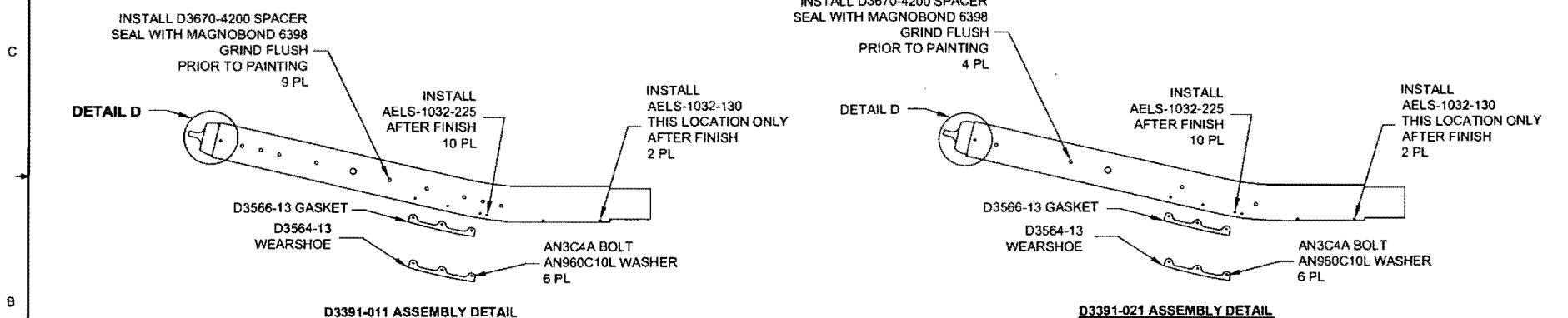
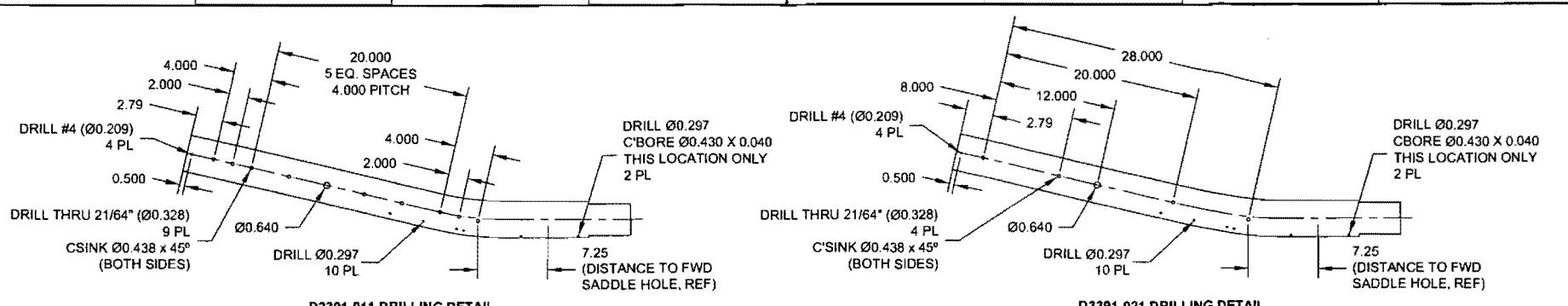
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

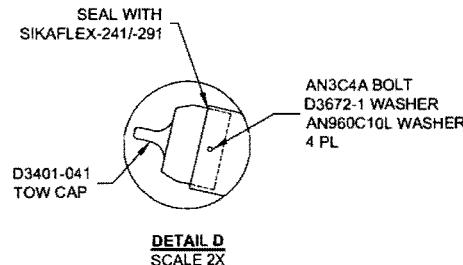
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



#### D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X	X	D3391-011	FWD TUBE ASSEMBLY
		D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3586-13	GASKET
9	4	D3670-4200	SPACER
4	4	D3672-1	WASHER
10	10	AN3C4A	BOLT
10	10	AN960C10L	WASHER
2	2	AELS-1032-130	INSERT
10	10	AELS-1032-225	INSERT



DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR		D3391	SHEET 4 OF 8
APPROVED	NM	TITLE	412 FLOAT SKIDTUBE
DE APPR		DATE	08.08.20

RELEASED DE-09-05-2020

W/64928

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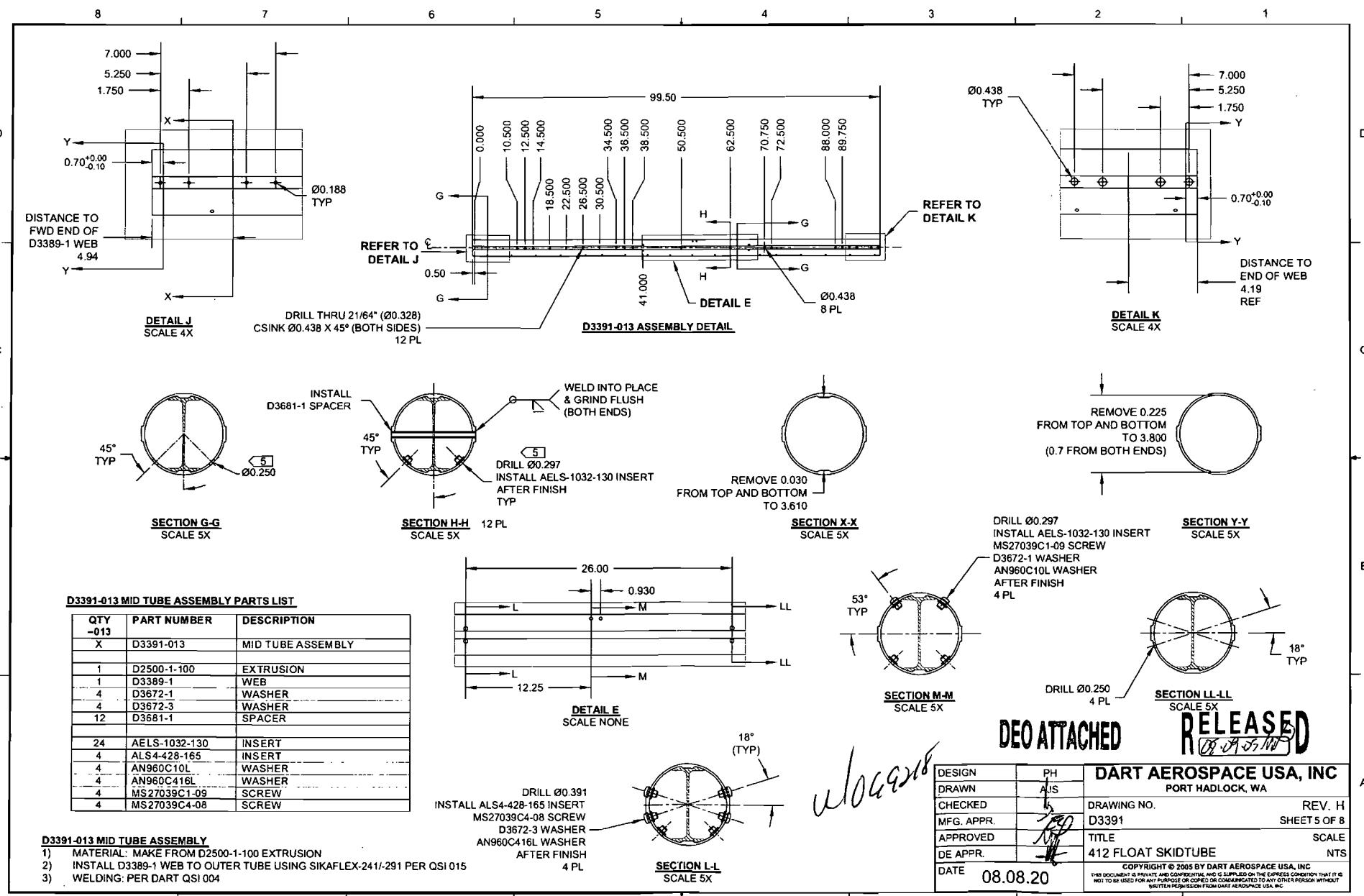
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



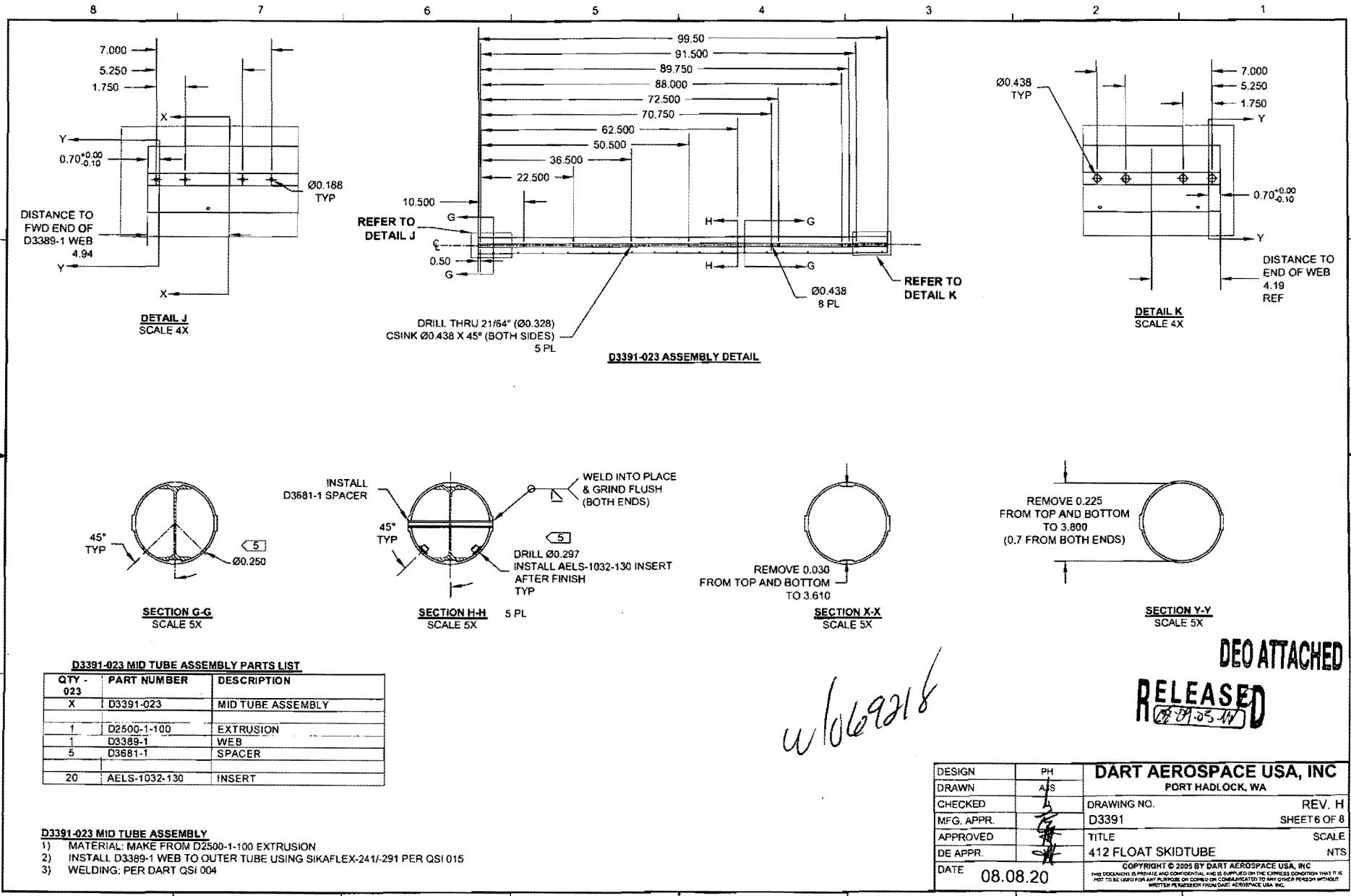
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



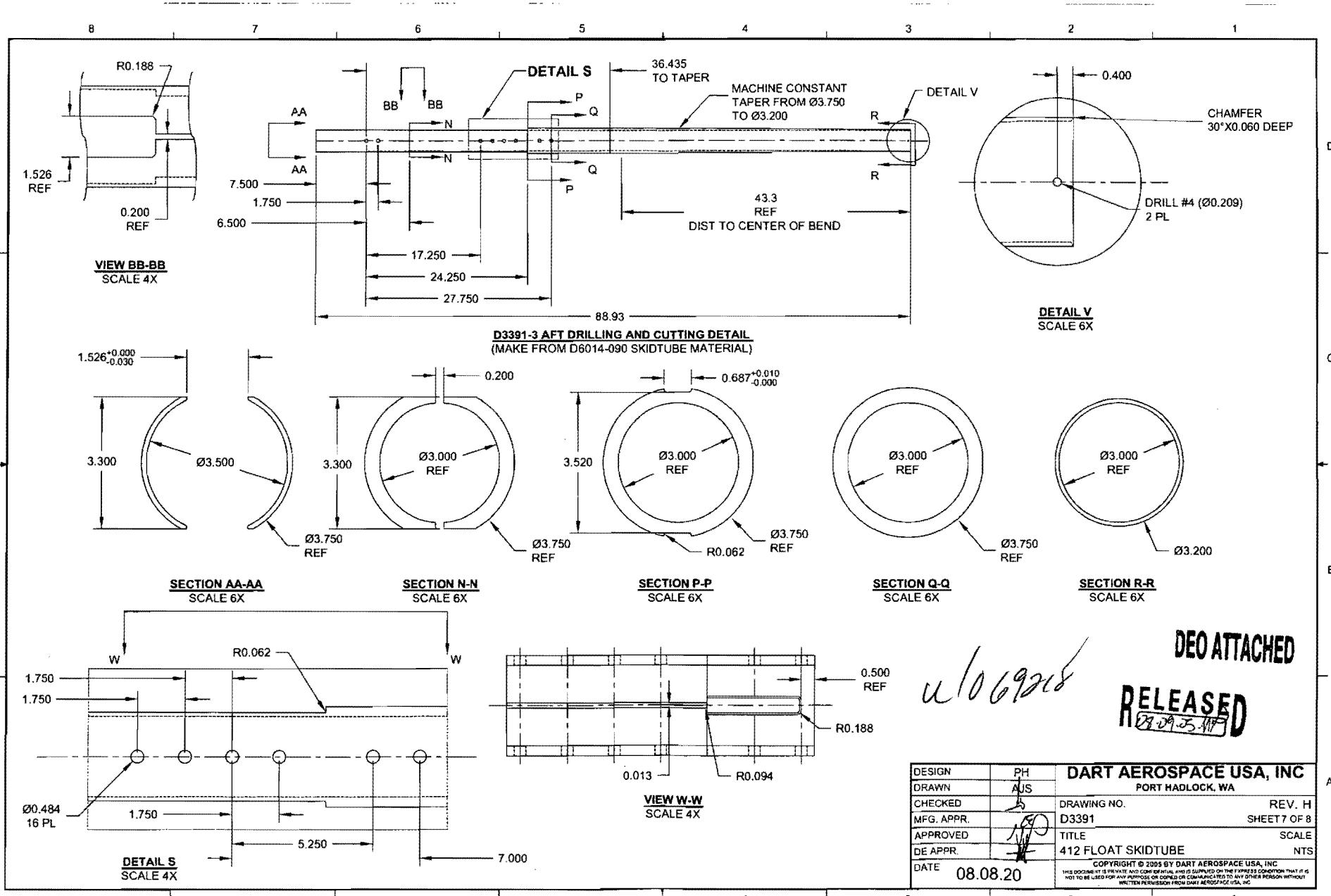
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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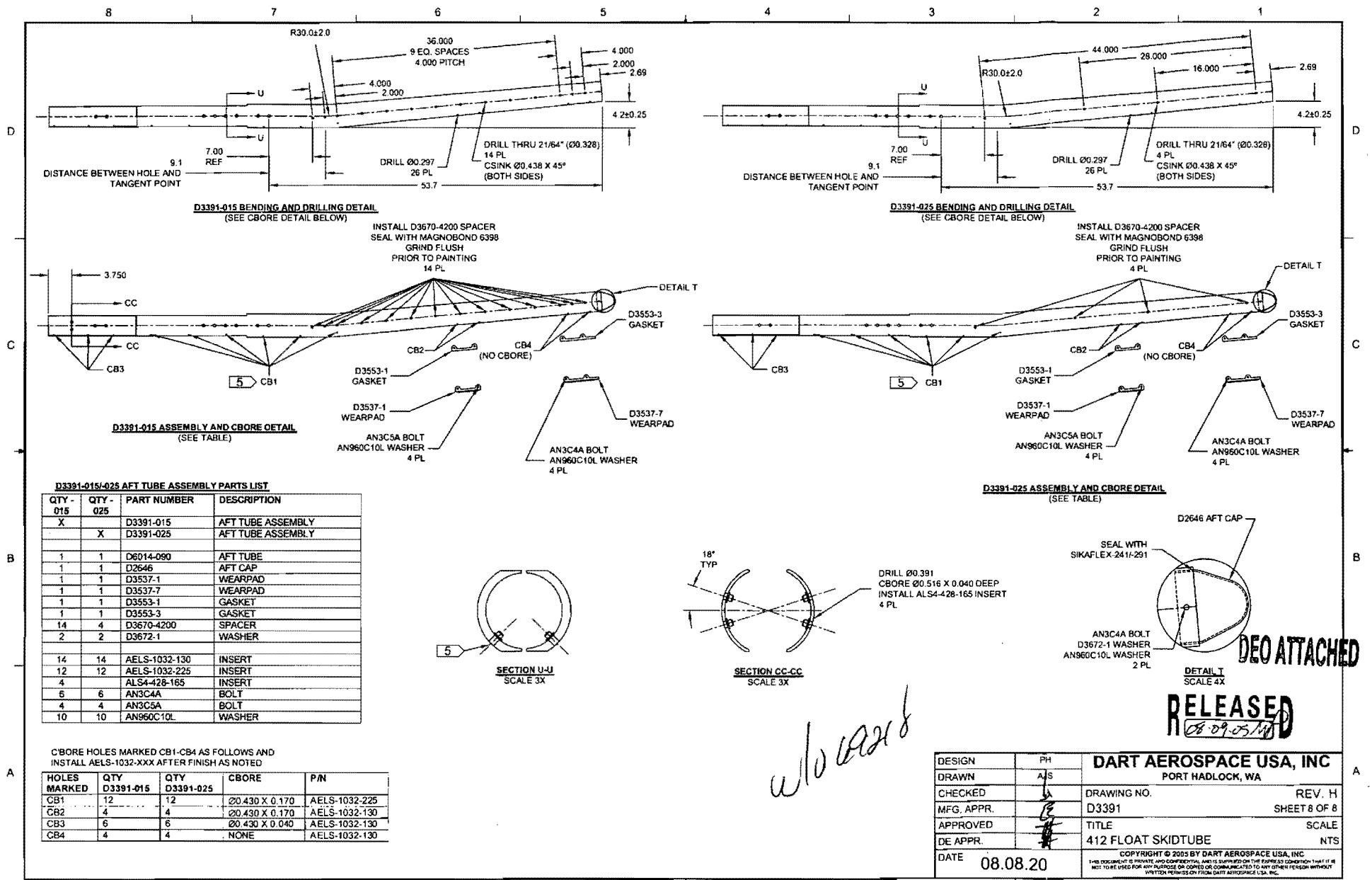
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D3391	TITLE 412 FLOAT SKIDTUBE	REV. H	DART AEROSPACE USA, INC ENGINEERING ORDER	D.E.O. NO. D3391-H-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>CP</i>	CHECKED <i>J</i>	MFG. APPR. <i>AA</i>	APPROVED <i>MP</i>	DE APPR. <i>TH</i>		
DATE 09.09.23	DATE 09.09.24	DATE 09/09/25	DATE 09/09/30	DATE 09/09/30		

**PURPOSE:**

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

**CHANGE:**

AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.~~ COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

**RELEASED**  
2010-02-02

*MP*

*U 1069218*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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